

1. Your new parts

Upload spreadsheet (see dropbox/biosafety)

2. What is your chassis organism?

Check: *Escherichia coli*

3. Do you plan to experiment with any other organisms, besides your chassis?

We also handled *Xanthomonas campestris* in order to extract the *inaX* gene from it.

4. How will your project work?

In one approach, the bacteria have Ice Nucleating Protein (*InaZ* gene) on their outer membrane and will be attached on a 3D shape made of PLA and biotin. On this shape, they will collect water particles from the air, and nucleate them with the Ice Nucleating Protein, in order to stimulate water collection and condensation. In another approach, the bacteria produce the Ice Nucleating Protein, and the protein itself will be attached on the 3D shape after lysis of the bacteria and purification of the protein. This will also stimulate water collection and condensation.

5. What risks does your project pose at the laboratory stage? What actions are you taking to reduce those risks?

Before starting we all got a (bio)safety training and we follow the lab (bio)safety rules and SOPs. All plasticware (tips etc.) are disposed as biohazard waste. Liquid cultures are sterilized using bleach and an autoclave, petri dishes are also sterilized using an autoclave. The laminar flow cabinets (biosafety cabinet level 2) work with a laminar vertical flow, as these are safer. Other general measures are lab coats and gloves.

6. How would your project be used in the real world?

Check: In the natural environment

7. What risks might your project pose, if it were fully developed into a real product that real people could use? What future work might you do to reduce those risks?

A low risk exists that the bacteria attached to the shape (*Escherichia coli*) could find their way into the collected water. The bacteria can be killed using a killing-switch. More ideally we will transplant the system to a GRAS bacteria already used for feed application and probiotics such as *Lactobacillus* sp., and *Bifidobacterium* sp.

8. Any further comments about your project:

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9. Comments about this form: Is it easy or difficult to use? Are the questions confusing?

Easy to use. Questions are straightforward, and example answers are helpful to guide your own answers to be as specific as required.